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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,422	03/10/2004	John Frederick Ackerman	GEAE-0011-DV1	4370
49305	7590	04/05/2006	EXAMINER	
JAGTIANI + GUTTAG 10363-A DEMOCRACY LANE FAIRFAX, VA 22030			TUROCY, DAVID P	
			ART UNIT	PAPER NUMBER
			1762	
DATE MAILED: 04/05/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action  
Before the Filing of an Appeal Brief**

Application No.

10/797,422

Applicant(s)

ACKERMAN ET AL.

Examiner

David Turocy

Art Unit

1762

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 17 March 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 17-30 and 32-38.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Detailed Action.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). \_\_\_\_\_.  
13. ☒ Other: See Attached Papers for definition of terminology.

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## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 3/17/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one skilled in the art at the time of the invention to modify Spence to use the protective coating on a thermal barrier coating as suggested by Hasz to provide a desirable protection from environmental contaminants with a reasonable expectation of success because Spence teaches applying an alumina/silicon coating protects various substrates, including ceramic, from contaminants and Hasz teaches thermal barrier coatings, with outer layers of ceramic, benefit from a contaminant protective coating. The prior art can be modified or combined to reject claims as prima facie obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375.

The applicant has argued that there is no motivation to combine Spence et al. and Hasz et al. The applicant has argued that the contaminants addressed by Spence

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et al, carbon deposits, are not similar to the contaminants addressed by Hasz, CMAS deposits, and one skilled in the art would not consider the teaches of Hasz et al relevant to Spence et al. Hasz et al is utilized here to show that thermal barrier coatings comprising an alumina barrier layer and a bond coating are susceptible to various modes of damage from containments. Hasz discloses the contaminants as materials that are in the engine, which deposit on the surface of the engine part, from air and fuel sources, and impurities to oxidation products and only uses CMAS as an exemplary showing (Paragraph 2, lines 20-21 and 32-35). The examiner agrees Spence et al. is directed to carbon deposits, more particularly, carbon deposits on fuel contacting surfaces located in high temperature zones of gas turbine engines, where the carbon deposits are a side effect of the fuels being consumed within the engine (Column 1, lines 11-25). Therefore it is the examiners position that the Spence et al and Hasz et al are relevant art because they both teach of protecting turbine engine parts from contaminants. Spence teaches applying an alumina/silicon coating protects various substrates, including ceramic, from contaminants and Hasz teaches thermal barrier coatings, with outer layers of ceramic, benefit from a contaminant protective coating. The prior art can be modified or combined to reject claims as prima facie obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375.

The applicant has argued against the Spence and Hasz et al reference stating that it does not teach infiltrating the outer layer, but rather teaches coating the substrate. The examiner respectfully disagrees, infiltrating, is defined by Webster's

online dictionary as "to cause to permeate something" and impregnating is defined as "to cause to be permeated". Therefore, it is the examiners position that infiltrating is synonymous with impregnating and the art does not recognize any distinction between coating and impregnating. *In re Marra et al.*, 141 USPQ 221. The examiner has attached are the definitions as defined by Webster's online dictionary.

The applicant has argued against the references stating that it forms an impermeable barrier coating on the thermal barrier coating (TBC) and does not teach or suggest infiltration of the porous outer layer. While the examiner agrees the coating, as taught by Hasz, discloses forming an impermeable coating, Hasz et al also discloses this impermeable coating protects the TBC from infiltration of contaminants. In addition Hasz clearly discloses "infiltration or viscous flow of the contaminant compositions into the thermal barrier coating cracks, openings, and pores is prevented....the liquid contaminant composition is unable to penetrate the impermeable coating" (Column 2, lines 54-64). Therefore, in order to be subsequent to infiltration, the TBC, as taught by Hasz, must necessarily have some amount of porosity. Therefore as discussed by the applicant, since the coating composition is applied to a porous material, the "coating" composition would inherently impregnate, i.e. infiltrate. *See Remark, Page 7, Paragraph 2.* In addition, the coating composition, as taught by Spence, is an aqueous solution, and Hasz teaches a liquid solution infiltrates the pores of the TBC, the coating material must necessarily infiltrate to some degree.

The applicant argues against the examiners position that the outer surface of Hasz has porosity and argues such is unsupported speculation. The examiner

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disagrees and directed the applications attention to the cited section of Hasz above, which clearly discloses a TBC with pores, cracks, etc., which are capable of being infiltrated by a liquid or gas.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., reservoir of alumina to react with the contaminants to form a third phase) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The applicants argue the reservoir of alumina is the infiltrated alumina present in the porous outer layer. The examiner notes, however, that the claims do not exclude a coating on the porous outer layer wherein a portion of the coating infiltrates the porous layer. Therefore the applicant's reliance on a "reservoir of alumina to react with contaminants" is not recited in the claims. In other words, the claims do not require the contaminants to react with the reservoir of infiltrated alumina.

The applicant has argued Spence and Hasz teach the opposite because they disclose coating having "clearly defined interface between" the coating and the component. The examiner cannot locate such a statement in either Hasz or Spence to illustrate such a "defined interface".

The applicant has argued neither Spence or Hasz teach of length of treatment time. While the examiner agrees, such a length of treatment time is not taught, there is inherently a time, and the time is clearly a result effective variable as stated by the

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examiner and it would have been obvious for one of ordinary skill in the art to optimize such a treatment length to insure proper coating thickness. Hasz discloses the importance of determining the appropriate coating thickness, where thick and thin coatings are possible (Column 4, lines 25-36). Therefore it is the examiners position that the length of treatment is a result effective variable, as not enough time would provide a less than desired coating thickness resulting in poor protective properties and too much time would provide a coating thickness which does not offer additional benefit of more protection. It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the optimal heat treatment time, in the process of Spence in view of Hasz, through routine experimentation, to provide the desired protective layer on a thermal barrier coating. It is well settled that determination of optimum values of these process parameters is within the skill of one practicing in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

The applicant has argued against the prior art stating none of the prior art cited or reviewed by the examiner teaches of a turbine component in an assembled state. The examiner respectfully disagrees, where the component as taught by Spence is clearly in "an assembled state", where such a term is given its broadest reasonable interpretation.

The applicant has argued against the Ceramic and Glasses reference stating that is does not teach forming finely divided alpha alumina. However, the prior art and the present claims, reflected by claim 26, teach all the same process steps and thus the results obtained by applicants process must necessarily be the same as those obtained by the prior art. Therefore by thermally converting the aluminum alkoxide to alpha

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alumina, it must necessarily result in finely divided alpha alumina. Either 1) the applicant and the prior art have different definitions for an alpha alumina thermally converted from aluminum alkoxide, or 2) the applicant is using other process steps or parameters that are not shown in the claim. The applicant has requested an affidavit from the examiner defending the position above, however, such an affidavit is not necessary. The claim, which requires converting to finely divided alumina, only requires thermal conversion of the aluminum alkoxide, where the prior art clearly discloses thermal conversion and therefore both the reference and the applicants claim require the same process steps. Therefore, the examiner maintains the above position, where thermal conversion must necessarily result in finely divided alpha alumina because the applicant arrives at such using the same process steps.

In response to applicant's argument that there is no suggestion to combine Rigney, Spence, and Hasz, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Rigney teaches of repairing a damaged turbine component, discloses removal of the entire thermal barrier coating, repairing the metal component at the discrete location of the damage and finally reapplying the thermal barrier coating to the outside of the refurbished turbine component (abstract) and one would be motivated to modify Rigney



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to apply the protective coating to the thermal barrier coating of a refurbished turbine component as suggested by Spence in view of Hasz to provide a desirable protection of a thermal barrier coating for a turbine component because Spence in view of Hasz discloses a protective coating applied to a thermal barrier coating is known in the art to provide protection against contamination and therefore would reasonably be expected to effectively provide a refurbished turbine component with a outer thermal barrier coating with protection against contaminants.

The applicant argues against the combination of Rigney, Spence, and Hasz stating Rigney clearly discloses applying various types of distinct coatings during the repair, none of which are related to the coatings as taught by the combination of Spence in view of Hasz. However, the examiner notes Rigney clearly discloses providing a repair with an outer TBC and taking the references collectively one would be motivated to modify Rigney to apply the protective coating to the thermal barrier coating of a refurbished turbine component as suggested by Spence in view of Hasz to provide a desirable protection of a thermal barrier coating for a turbine component.

### ***Conclusion***

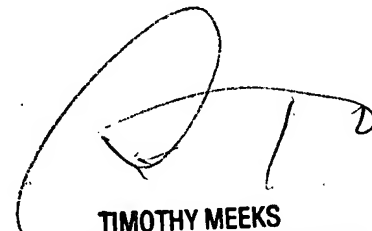
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy  
AU 1762



**TIMOTHY MEEKS**  
**SUPERVISORY PATENT EXAMINER**



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# impregnate

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impregnate[1,transitive verb]  
impregnate[2,adjective]

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### Main Entry: **im·preg·nate**

Pronunciation: im-'preg-'nAt, 'im-

Function: *transitive verb*

Inflected Form(s): -nat-ed; -nat-ing

Etymology: Late Latin *impraegnatus*, past participle of *impraegnare*, from Latin *in-* + *praegnas* pregnant

1 a : to cause to be filled, imbued, permeated, or saturated  
b : to permeate thoroughly-

2 : to make pregnant : **FERTILIZE**

synonym see **SOAK**

- **im·preg·na·tion** /im-'preg-'nA-sh&n/ *noun*

- **im·preg·na·tor** /im-'preg-'nA-t&r, 'im-/ *noun*

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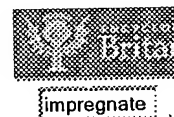
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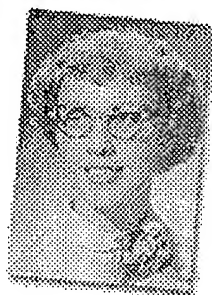
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# infiltrate

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Main Entry: **in·fil·trate**

Pronunciation: in-'fil-'trAt, 'in-(')

Function: *verb*

Inflected Form(s): **-trat·ed; -trat·ing**

*transitive senses*

- 1 : to cause (as a liquid) to permeate something by penetrating its pores or interstices
- 2 : to pass into or through (a substance) by filtering or permeating
- 3 : to pass (troops) singly or in small groups through gaps in the enemy line
- 4 : to enter or become established in gradually or unobtrusively usually for subversive purposes <the intelligence staff had been *infiltrated* by spies>

*intransitive senses* : to enter, permeate, or pass through a substance or area by filtering or by insinuating gradually

- **infiltrate** *noun*

- **in·fil·tra·tion** /'in-(')fil-'trA-sh&n/ *noun*

- **in·fil·tra·tive** /'in-(')fil-'trA-tiv, in-'fil-tr&- / *adjective*

- **in·fil·tra·tor** /in-'fil-'trA-t&r, 'in-(') / *noun*

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